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IDENTIFIERS Future Farmers of America

ABSTRACT

This guide, which was written as an initial step in the development of a systemwide articulated curriculum sequence for all vocational programs within the Metropolitan Nashville Public School System, outlines the suggested scope and sequence of a 3-year program in agriculture. The guide consists of a course description; general course objectives; course content outlines for each of the 3 years of the program; and lists of recommended textbooks, curriculum guides, and audiovisual materials. Topics addressed for each year of the program include the following: (1) supervised occupational experience programs (SOEP), production agriculture, agriculture in Tennessee, major types of farming in the United States, the Future Farmers of America (FFA), parliamentary procedure, public speaking, records and recordkeeping, shop safety practices, laying out and cutting common rafters, arc welding, oxyacetylene welding and cutting, plant science, animal science, and career exploration; (2) leadership training, soil science, livestock diseases and parasites, livestock physiology, SOEP, agricultural careers, recordkeeping and agribusiness management, forestry, gardening, wildlife conservation, natural resources, small engines, and agriculture mechanics; and (3) FFA, soil science, animal nutrition, animal processing, animal diseases and sanitation, recordkeeping, agricultural mechanics, and plant science. (MN)

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AGRICULTURE

SCOPE AND SEQUENCE



VOCATIONAL EDUCATION

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Metropolitan Public Schools
Nashville Davidson County, Tennessee
Charles O. Frazier, Director

FOREWORD

This scope and sequence guide, developed for the Agriculture Vocational Education program, represents an initial step in the development of a systemwide articulated curriculum sequence for all vocational programs within the Metropolitan Nashville Public School System. It is a direct result of needs expressed by teachers, parents, and the business community for sequential structure within the vocational education curriculum. An articulated vocational curriculum allows a student to move from one level of instruction to the next without repeating learning tasks already mastered, and without experiencing gaps in the presentation of relevant instructional material.

A goal of this curriculum effort is to provide teachers a usable guide based on input from the teachers. The initial step was an identification of course content, with all teachers having an opportunity to contribute. What follows is a publication using the teachers' contributions: a sequential listing of objectives and skills for each program offering.

This guide does not include all specific resource materials that may be used to assist students in acquiring minimum competencies. It is to serve as a guide for the sequence of course content and scope of what is to be taught. This guide content is extremely important and its use is encouraged. The suggested competencies and resource materials allow instructors an opportunity to be creative and resourceful in meeting the needs of individual programs and students.

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INTRODUCTION

This guide is intended to serve as a framework and to provide continuity among the Agriculture programs throughout the Metropolitan Public Schools. It should be emphasized that program flexibility is necessary and deviations from this format should be kept to a minimum.

COURSE DESCRIPTION

Agriculture is a study of the development of agriculture and its relation to the economic, social and political growth of the nation. It includes a study of farmlands—types, cost and use, soil conservation, preparation, planting, fertilization, cultivation and harvesting. Included also is a study of insecticides, herbicides and fungicides. Time is devoted to study of the ecology of the agricultural environment, air, soil and water pollution, animal husbandry, farm machinery, buildings, fences, gates, welding, carpentry and applicable metal work. Students learn farm business and recordkeeping, agricultural economics, farm related agribusiness enterprises and their significance to the farmer. This course is designed as a full year course providing a general overview of the total agricultural industry.

GENERAL COURSE OBJECTIVES

1. To provide students with basic skills and knowledge that will enable them to enter one of the occupational areas in agriculture
2. To make students aware of the career opportunities in agricultural occupations
3. To make students aware of the importance of agriculture and the role it plays in the community, county, state and nation.
4. To teach students to identify, use, maintain, repair and operate safely all equipment used in the field of agriculture
5. To develop the ability to identify and select for production, breeds of livestock
6. To develop the ability to understand the price marketing structure
7. To develop good safety practices in relation to working with livestock, chemicals, farm, agricultural mechanics and other agricultural activities
8. To teach students to appreciate conservation and conservation practices
9. To teach students to understand plant science and efficiency in plant production
10. To teach students to recognize factors that affect plant growth and development
11. To develop the ability to conserve and properly use renewable natural resources
12. To develop the ability to initiate and successfully maintain a supervised occupational experience program in agricultural production/business

GENERAL COURSE OBJECTIVES continued:

13. To develop competent, aggressive, rural and agricultural leadership in school, home and community

COURSE CONTENT FOR AGRICULTURE I

(First and Second Semesters)

I. Classroom orientation (1 week)

Specific objectives:

To become acquainted with the program of studies in Agriculture
To become acquainted with the class expectations
To become acquainted with rules and regulations
To become acquainted with Future Farmers of America club

- A. Understands program of studies
- B. Understands class requirements and expectations
- C. Understands rules and regulations for classroom and shop
- D. Understands Future Farmers of America club

II. Agriculture orientations (2 weeks)

Specific objectives:

To define the importance of agriculture in the United States and the world
To differentiate between productive and non-productive agriculture
To become familiar with career classification in agriculture

- A. Understands agriculture's definition
- B. Recognizes productive and non-productive agricultural differences
- C. Recognizes employment opportunities in United States
 - 1. Occupational fields
 - 2. Job requirements and titles

III. Supervised occupational experience programs (2 weeks)

Specific objectives:

To become acquainted with SOEP
To learn procedure for developing a meaningful SOEP

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III. Supervised occupational experience programs continued:

- A. Defines SOEP
 - 1. Productive
 - 2. Non-productive
- B. Learns SOEP objectives
 - 1. Short term
 - 2. Long term
- C. Discerns SOEP development
- D. Understands placement in SOEP

IV. Production agriculture (1 week)

Specific objectives:

To become acquainted with farming and farm related activities
To develop an appreciation for food production

- A. Distinguishes farming trends in the United States
- B. Distinguishes farming efficiency standards for United States

V. Tennessee agriculture (1 week)

Specific objectives:

To become acquainted with Tennessee as a farm state
To become acquainted with agricultural trends in Tennessee

- A. Recognizes physiographic regions of Tennessee
- B. Recognizes trends in Tennessee farming and agribusiness

VI. Major types of farming in the United States (1 week)

Specific objectives:

To become acquainted with major farming regions
To identify factors that dictate farming activities

- A. Learns farming regions

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VI. Major types of farming in the United States continued:

- B. Understands farming factors for production

VII. Introduction to Future Farmers of America (3 weeks)

Specific objective:

To become familiar with the F.F.A.

- A. Knows history of the F.F.A.
- B. Learns type and requirements for membership
- C. Learns official colors
- D. Learns motto
- E. Learns symbols
- F. Learns degrees of active membership
- G. Learns officers and duties
- H. Learns aims and purposes of F.F.A.
- I. Learns citizenship
- J. Learns organization activities

VIII. Parliamentary procedure (2 weeks)

Specific objectives:

To become acquainted with general rules of conducting a business meeting
 To identify common parliamentary procedure terms
 To identify by performance in class the basic parliamentary abilities

- A. Discerns purpose of parliamentary procedure
- B. Practices procedure for conducting a business meeting
- C. Reviews terms
- D. Demonstrates parliamentary abilities

IX. Public speaking (2 weeks)

Specific objective:

To learn to speak before a group

- A. Distinguishes learning from memorizing
- B. Develops poise and confidence
- C. Holds attention of the audience
 - 1. Rate of delivery
 - 2. Sincerity
 - 3. Eye contact
 - 4. Expression emphasis
 - 5. Gestures
 - 6. Stage appearance
 - 7. Articulation

X. Records and recordkeeping (2 weeks)

Specific objectives:

To develop an awareness of the importance of recordkeeping
To learn to be consistent, punctual and accurate in recordkeeping
To incorporate pride in recordkeeping
To teach entry procedures on expense and income

- A. Defines terms
- B. Understands purpose of records
- C. Understands diligence, punctuality and accuracy
- D. Understands expense entries
- E. Understands income entries
- F. Understands pro-rating entries

XI. Shop safety practices (1 week)

Specific objective:

To identify shop safety practices

- A. Knows rules of the shop
- B. Knows emergency equipment and procedures

XII. Laying out and cutting common rafters (2 weeks)

Specific objectives:

To become acquainted with common rafter terms

To become familiar with the use of marking tools, hand saws and claw hammers

To develop an appreciation for accuracy in measuring, calculating, marking, cutting and installing a common rafter

- A. Reviews terms
- B. Understands framing square
 - 1. Square scale reading
 - 2. Angle calculating
- C. Uses hand saws
- D. Uses claw hammer
- E. Learns marking a common rafter
- F. Learns cutting the rafter
- G. Learns installing rafters

XIII. Arc welding (2 weeks)

Specific objectives:

To become acquainted with basic equipment in arc welding

To identify arc welding terms

- A. Understands equipment
- B. Reviews terms

XIII. Arc welding continued:

- C. Understands accessory equipment
- D. Practices striking an arc
- E. Practices running a bead
- F. Practices making a butt weld

XIV. Oxyacetylene welding and cutting (2 weeks)

Specific objectives:

To identify oxyacetylene cutting terms
 To identify oxyacetylene cutting equipment parts
 To set up the equipment for cutting

- A. Reviews terms
- B. Learns cutting equipment parts
- C. Practices setting up the tanks
- D. Practices purging the lines
- E. Practices lighting the torch and adjusting to the proper flame
- F. Practices cutting a piece of metal
- G. Practices cutting off the torch and bleeding the lines

XV. Plant science (4 weeks)

Specific objectives:

To identify major crops grown in community, county and state
 To identify basic plant terminology
 To explain plant processes
 To identify common crop and garden seeds
 To list essential plant nutrients
 To explain the effects of N, P, K and Ca on plant growth

- A. Identifies major crops
- B. Reviews terms
- C. Understands photosynthesis

XV. Plant science continued:

- D. Understands respiration
- E. Understands transpiration
- F. Learns seed identification
- G. Learns plant nutrients
- H. Understands plant growth and N, P, K and Ca

XVI. Animal science (4 weeks)

Specific objectives:

To use or define correctly commonly used livestock terms
 To identify major breeds of beef and dairy cattle
 To identify major breeds of swine, sheep and horses
 To describe animal digestion
 To describe the importance of carbohydrates, fats, proteins, vitamins, minerals and water on animal digestion

- A. Reviews terms
- B. Learns breeds of beef and dairy cattle
- C. Learns breeds of swine, sheep and horses
- D. Understands animal digestion
- E. Understands effects of carbohydrates, fats, proteins, vitamins, minerals and water

XVII. Career exploration (2 weeks)

Specific objectives:

To list major occupational areas and requirements for each
 To identify capabilities and interests
 To list requirements for career objectives

- A. Explores occupations and requirements
- B. Performs self study
- C. Studies specific occupations

C. Studies specific occupations continued:

1. Training requirements
2. Nature of work
3. Outlook
4. Compensation

This schedule allows one week each semester for review and examinations.

COURSE CONTENT FOR AGRICULTURE II

(First and Second Semester)

I. Orientation (1 week)

Specific objectives:

To review programs of studies in Agriculture
To become acquainted with class expectations
To review rules and regulations in classroom and shop
To review the Future Farmers of America organization

- A. Understands program of activities
- B. Understands class requirements and expectations
- C. Understands rules and regulations for classroom and shop
- D. Understands Future Farmers of America club

II. Leadership training (2 weeks)

Specific objectives:

To become acquainted with program of work
To learn the duties of the chairperson and members of each committee
To learn the method of degree advancement
To learn the scope of local, state and national contests

- A. Participates in developing F.F.A. program of work
- B. Uses F.F.A. student handbook on committees
- C. Studies F.F.A. manual
- D. Studies F.F.A. manual, local handouts

III. Soil science (2 weeks)

Specific objectives:

To learn the importance of the factors affecting soil formation
To learn components of soil
To learn how to interpret and use the soil judging scorecard

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III. Soil science continued:

- A. Studies soil formation
- B. Studies soil particles
- C. Uses soil judging scorecard and practice sites

IV. Introduction to livestock diseases and parasites (2 weeks)

Specific objectives:

- To learn types of livestock diseases
- To learn symptoms of common diseases and parasites
- To learn preventive measures of disease
- To learn how to select and use proper disinfectants
- To learn proper methods of administering vaccines

- A. Studies livestock diseases
- B. Studies disease and parasite symptoms
- C. Studies disease and parasite preventive measures
- D. Studies proper disinfectants
- E. Studies administering vaccines

V. Livestock physiology (2 weeks)

Specific objectives:

- To learn skeleton system
- To learn muscular system
- To learn digestive system
- To learn reproductive system

- A. Learns skeleton system
- B. Learns muscular system
- C. Learns digestive system
- D. Learns reproductive system

VI. Supervised occupations experience programs (1 week)

Specific objectives:

Specific objectives continued:

To review SOEP

To review procedure for developing and maintaining a SOEP

A. Understands agriculture production

B. Understands agribusiness

VII. Public speaking (1 week)

Specific objectives:

To learn how to effectively select a topic for a speech

To learn why public speaking is important or necessary

To learn how to prepare a speech

To learn how to effectively deliver a speech

A. Selects speech topics

B. Understands reasons for communicating in public

C. Prepares a speech

D. Delivers a speech

VIII. Agricultural careers (4 weeks)

Specific objectives:

To determine employment and business opportunities in agribusiness

To determine employment and business opportunities in agricultural production

To determine employment and business opportunities in grading, marketing, processing distributing, storing, servicing, financing, etc., of food, fiber and raw materials

To determine employment and business opportunities in professional agriculture

A. Explores agribusiness opportunities

1. Jobs in our area

2. Employment numbers and distribution

3. Training required

4. Advancement, security, benefits, living and working conditions

VIII. Agricultural careers continued:

- B. Explores agricultural production opportunities
 - 1. Type and distribution of farm production
 - 2. Number and sizes of farms
 - 3. Kind, importance and distribution of livestock
 - 4. Kind, importance and distribution of crop products
 - 5. Natural resources required for production of farm products
- C. Understands grading, marketing, processing, distributing, storing, servicing, financing, etc., of food, fiber and raw materials
 - 1. Jobs in the area
 - 2. Employment opportunities
 - 3. Training required
 - 4. Advancement, security, benefits, living and working conditions
- D. Explores professional agricultural opportunities
 - 1. World
 - 2. U.S.A.
 - 3. Tennessee
 - 4. Local

IX. Recordkeeping and agribusiness management (2 weeks)

Specific objectives:

To learn the importance of recordkeeping

To develop an awareness of the requirements needed in an agribusiness

To develop an awareness of the requirements needed in a farm business

- A. Understands recordkeeping
 - 1. Operating records
 - 2. Contracts

A. Understands recordkeeping continued:

3. Taxes

B. Understands agribusiness

1. Capital investment

2. Labor

3. Operating capital

4. Management

C. Studies farm business

1. Planning for increased efficiency

2. Inventorying resources

3. Determining size of farm business

4. Soil mapping and cropping systems

5. Livestock systems

6. Efficient use of labor

7. Obtaining credit

X. Forestry (4 weeks)

Specific objectives:

To determine possibilities of forestry as a farm enterprise
 To identify areas on a farm economically suited to forestry
 To identify species of trees common in our area
 To learn how to improve existing stands of timber
 To learn how to establish a new stand of forest growth
 To learn how to harvest for highest returns
 To learn how to measure forest products
 To learn how to market forest products

A. Understands forestry as a farm enterprise

1. World importance of forestry

2. U. S. importance of forestry

A. Understands forestry as a farm enterprise continued:

3. Tennessee importance
4. Supply and demand
5. Uses and markets

B. Studies areas suited to forestry

1. Soil
2. Plant succession
3. Species adapted to our area

C. Identifies species

1. Soil regions
2. Value grouping
3. Cover type
4. Life and growth
5. Twigs, buds, leaves, bark, grain

D. Studies improving existing stands

1. Harvest selection
2. Wildlife
3. Culling
4. Fertilization
5. Conserving forestry soil

E. Studies establishing a new stand

1. Site and species selection
2. Method of reseeding
3. Natural regeneration

E. Studies establishing a new stand continued:

4. Artificial regeneration
5. Direct seeding
6. Planting seedlings
7. Rootings

F. Studies harvest for highest returns

1. When to cut
2. Thinning
3. Felling
4. Transporting

G. Learns to measure forest products

1. Units of measure
2. Measuring methods
3. Fuel wood measurements
4. Sawed lumber measurements
5. Log measurements
6. Standing tree measurements

H. Studies marketing products

1. Specifications
2. Contracts
3. Outlets
4. Forms to market

XL Garden (3 weeks)

Specific objectives:

Specific objectives continued:

- To determine family needs
- To learn length of growing season, planting dates, rates, etc.
- To learn varieties to select
- To learn how to select proper location
- To learn how to soil test
- To learn fertilization rates
- To learn how to control insects, diseases and weeds
- To learn methods of harvesting and storing

- A. Determines family needs
- B. Studies growing season, planting dates, rates
- C. Studies varieties
- D. Studies site selection
- E. Studies soil testing procedures
- F. Studies fertilizer requirements
- G. Studies insects, disease, weed control
- H. Studies harvesting and storing

XII. Wildlife conservation (2 weeks)

Specific objectives:

- To learn importance of conserving our wildlife
- To learn game laws of Tennessee
- To learn to identify the wild game of Tennessee
- To learn scientific approach to wildlife management

- A. Studies management of our natural resources
 - 1. Wildlife
 - 2. Forest
 - 3. Browse
- B. Understands game laws
 - 1. Age

- B. Understands game laws continued:
 - 2. Legal arms
 - 3. Prohibited acts
- C. Learns small game, big game, waterfowl, birds, fish
- D. Understands game control
 - 1. Game wardens
 - 2. Commercial hunting
 - 3. Game preserves

XIII. Natural resources (2 weeks)

Specific objectives:

To learn character of natural resources
 To learn value of natural resources
 To learn the uses of natural resources
 To learn usefulness of ecology

- A. Learns character of natural resources
 - 1. Inexhaustible resources
 - 2. Exhaustible resources
 - 3. Distribution of resources
- B. Learns value of resources
 - 1. Supply factors
 - 2. Demand factors
 - 3. Wants and abilities
 - 4. Human resources
- C. Learns uses of resources
 - 1. Population
 - 2. Animate energy

C. Learns uses of resources continued:

3. Inanimate energy

D. Studies ecology

1. Science

2. Pollution

3. Waste disposal

4. Recreation

XIV. Small engines (2 weeks)

Specific objectives:

To learn different types of small engines

To learn principles of operation of a small engine

To learn difference between a two-cycle and four-cycle engine

To learn parts of a small engine

A. Studies types of small engines

1. Crankshaft location

2. Carburetor

3. Starter

B. Understands principles of operation

1. Two-stroke

2. Four-stroke

C. Understands two-cycle and four-cycle

1. Piston

2. Plugs

3. Valves

4. Oil

XIV. Small engines continued:

- D. Learns parts
 - 1. External
 - 2. Internal

XV. Agriculture mechanics (4 weeks)

Specific objectives:

To learn shop safety habits
To learn electrical terms
To learn electrical splices
To learn how to wire switches
To learn how to use plumbing equipment and supplies
To learn how to calculate concrete amounts
To learn how to use tool-fitting tools

- A. Learns shop safety
 - 1. Safety rules
 - 2. Equipment use
- B. Studies electricity terminology
- C. Practices electrical splices
 - 1. Tap
 - 2. Western Union
 - 3. Pigtail
- D. Practices electrical switch installation
 - 1. Two-way
 - 2. Three-way
- E. Practices plumbing connections
 - 1. Terms
 - 2. Fittings

- E. Practices plumbing connections continued:
 - 3. Pipe
 - 4. Compounds
- F. Mixes concrete
 - 1. Measurements
 - 2. Mixtures and aggregates
 - 3. Pouring and setting
- G. Practices tool-fitting
 - 1. Power grinder
 - 2. Forge
 - 3. Handles
 - 4. Drills
 - 5. Knives, scissors, chisels, axes, plane blades, bits, files
 - 6. Tap and die sets

This schedule allows one week each semester for review and examinations.

COURSE CONTENT FOR AGRICULTURE III

(First and Second Semesters)

I. Review of F.F.A. and program of work (2 weeks)

Specific objectives:

To review F.F.A. history, aims and purposes
To plan and prepare F.F.A. program of work

A. Reviews F.F.A. publications

1. F.F.A. manual
2. National newsletter
3. State newsletter
4. F.F.A. workbooks

B. Develops program of work

1. Review past program of work
2. Update program of work
3. Implement program

II. Parliamentary procedure (2 weeks)

Specific objectives:

To review parliamentary rules
To learn new procedures
To practice using parliamentary procedures

A. Reviews parliamentary procedure

1. Parliamentary terms
2. Application

B. Studies new terms and procedures

1. Parliamentary terms

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B. Studies new terms and procedures continued:

2. Test (written)

C. Applies new procedures

1. Test (oral application to procedures)

2. Methods of use at meetings

III. Soil science (4 weeks)

Specific objectives:

To review soil characteristics

To review soil uses

To relate the importance of soil on the nation's economy

To relate the importance of soil conservation

A. Reviews soil characteristics

1. Types

2. Color

3. Consistency

B. Reviews soil uses

1. Formation

2. Depth

C. Studies importance of soil

1. Formation

2. Properties

3. Classification

D. Studies soil conservation

1. Land classification

2. Soil erosion

3. Terraces, contouring, grass waterways, strip cropping

IV. Animal nutrition (4 weeks)

Specific objectives:

To determine needs of livestock
 To learn kinds of digestive systems
 To learn feed conversion
 To balance rations

A. Determines needs

1. Type animal
2. Age of animal
3. Use of animal

B. Understands digestive systems

1. Ruminant
2. Non-ruminant

C. Studies feed conversion

1. Utilization of feed
2. Pound feed/pound gain
3. Supplements and additives

D. Balances rations

1. Animal requirements
2. Feed sources
3. Nutrition levels of feed

V. Animal processing (4 weeks)

Specific objectives:

To learn methods of slaughter
 To learn types of cuts (wholesale & retail)
 To learn processing of carcass

V. Animal processing continued:

- A. Understands methods of slaughter
 - 1. Farm
 - 2. Plant
 - 3. Kosher
- B. Knows types of cuts (ID)
 - 1. Slides
 - 2. Replicas
 - 3. Store displays
- C. Learns processing of carcass
 - 1. Wholesale cuts
 - 2. Retail cuts
 - 3. Specialty cuts

VI. Animal diseases and sanitation (2 weeks)

Specific objectives:

To list symptoms of common diseases
 To learn methods of prevention and control
 To learn steps of administering vaccines and antibiotics

- A. Identifies common diseases
- B. Studies prevention and control
 - 1. Symptom of animals
 - 2. Source of infection
 - 3. Sanitation
 - 4. Treatment
- C. Administers vaccines and antibiotics

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C. Administers vaccines and antibiotics continued:

1. Types of vaccines
2. Types of antibiotics
3. Method of injections
4. Preventive inoculation

VII. Recordkeeping (4 weeks)

Specific objectives:

To learn importance of keeping records

To learn use of records in crop and livestock planning

To learn use of records in obtaining and using credit

A. Learns importance of record keeping

1. Taxes
2. Inventory
3. Depreciation

B. Studies crop and livestock planning

1. Purchase and sale dates
2. Breeding
3. Production
4. Health

C. Studies credit

1. Capital investment (land, equipment, buildings, livestock)
2. Labor
3. Operating capital
4. Enterprise management
5. Taxes

VIII. Agricultural mechanics (9 weeks)

Specific objectives:

To learn importance of shop skills
To learn safe operation and care of equipment
To learn use of equipment
To learn importance of a farm and/or home shop

- A. Learns importance of shop skills
 - 1. Equipment uses
 - 2. Careers in mechanics
 - 3. Economy and personal accomplishment
- B. Learns safe operation and care of equipment
 - 1. Terminology
 - 2. Identification of tools
 - 3. Care of tools
 - 4. Selection of correct tools
- C. Learns use of equipment
 - 1. Function of each tool
 - 2. Maintenance of equipment
 - 3. Repair of equipment
- D. Studies importance of farm and/or home shop
 - 1. Cost of establishment (shop, equipment)
 - 2. Storage and arrangement
 - 3. Economics of own repair work
 - 4. Layout of building and equipment

VIII. Plant science (3 weeks)

Specific objectives:

- To learn principles of plant reproduction, growth and improvement
- To learn factors affecting the adaptability of plants
- To learn principles of plant nutrients and fertilization
- To learn principles of seedbed preparation and cultivation
- To learn principles of weed control
- To learn about the prevention and control of diseases and insects
- To learn principles of harvesting and storage

- A. Learns principles of plant reproduction, growth and improvement
 - 1. Reproduction
 - 2. Genetics
- B. Learns factors affecting the adaptability of plants
 - 1. Purpose
 - 2. Resistance to disease, drought, etc.
 - 3. Length of growing season
 - 4. Yield
 - 5. Quality
 - 6. Growing characteristics (strength of plant, height, color of fruit)
- C. Learns principles of plant nutrients and fertilization
 - 1. Commercial fertilizer
 - 2. Plant food requirements
 - 3. Cover and crop residue
 - 4. Farm manures
 - 5. Rate determinations
 - 6. Liming

VIII. Plant science continued:

- D. Studies principles of seedbed preparation and cultivation
 - 1. Time and frequency of cultivation
 - 2. Types of equipment
 - 3. Equipment adjustment according to plant
- E. Studies principles of weed control
 - 1. Mechanical control
 - 2. Chemical control
 - 3. Identifying weeds
 - 4. Applying chemicals
 - 5. Cleaning and storing of chemicals
- F. Studies prevention and control of diseases and insects
 - 1. Preventive measures
 - 2. Identifying insects and diseases
 - 3. Control measures
 - 4. Equipment needed
 - 5. Safety of equipment
 - 6. Cleaning and storing of equipment
- G. Studies principles of harvesting and storage
 - 1. Storage dates
 - 2. How to store
 - 3. Facilities needed
 - 4. Operating storage facilities
 - 5. Cleaning and protecting equipment and facilities

This schedule allows one week each semester for review and examinations

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- Giachino and Feiere. Basic Bench-Metal Practice. Kansas City, Missouri: Charles A. Bennett Company, Inc., 1943.
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